

Applicant: Keegstra et al.  
Application Serial No.: 10/748,943  
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### **REMARKS**

Reconsideration of the application is respectfully requested. Claims 7 has been Amended and Claim 10 has been cancelled.

### **Drawings**

The Examiner has objected to the drawings alleging that they do not show every feature of the invention specified in the claims. In response, Applicant has amended Claim 7 to properly recite the limitation of a convex solid head of a projectile and cancelled claim 10. Withdrawal of the Objection to the Drawings is hereby requested.

### **Section 112 Rejections**

The Examiner has rejected Claim 7 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner alleges that the limitation of a "convex" hull is not supported by the diagrams or the specification. Also, the Examiner has rejected Claim 10 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner alleges that the limitation of a "sabot positioned between said wad and said slug" is not supported by the diagrams or the specification. In response, Applicant has amended Claim 7 to properly recite the limitation of a convex solid head of a projectile and cancelled claim 10. Withdrawal of the Rejection under Section 112 is hereby requested.

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### **Section 103 Rejections**

The Examiner has rejected Claims 1, 3, 7, 10-12 under 35 U.S.C. §103 (a) as being unpatentable over Hayashi (U.S. Patent No. 4,043,267) in view of Amick (U.S. Patent No. 3,527,880).

Independent claims 1 and 7 recite that the cylindrical body of the present invention is solid from the cylindrical bore to the convex forward end. In contrast to the present invention, Hayashi describes an improved wad structure as shown under Column 1, line 10. Hayashi does teach a hollow based projectile but the following citations in Hayashi specifically show that the hollow base is intended to receive and form an attachment with the wad when subjected to the pressures of powder ignition. Col. 5, line 18, Col. 5, line 54, Col. 5, line 63, Col. 6, line 3 Col. 6, line 20. These descriptions show that the Hayashi wad, forced into the rearward facing hollow cavity unitize the bullet and wad so that the wad acts in the manner of a drag stabilizer during flight. Hayashi contains no teaching or suggestion as to the independent ability of the hollow base to provide any in-flight stability to his projectile

Furthermore, there would be no motivation to look to Hayashi to arrive at the present invention. Specifically, the present invention is directed to an 'extended range less lethal pro-

jectile. The hollow base of the present invention is purpose specific in its efficacy to allow controlled airflow around the rear of the projectile to allow extended range stability and accuracy not available in other less lethal munitions. The present invention has no provision for attachment between the wad and projectile.

In the present invention, the forward-weighted condition is designed to compliment the airflow around the rearward end of the projectile to enhance extended range accuracy. The convex forward end also serves to increase surface area to minimize the potential for penetration by spreading the kinetic energy over a larger area. Hayashi contains no teaching with respect to the frontal shape design.

Amick teaches achieving less lethal design by assumed deformation on impact. In contrast the present invention specifically relies on light weight and frontal design to minimize inertia and enhance the effective distribution of kinetic energy to disallow penetration. There is no mention in the present invention that deformation on impact is a desired or intended outcome. The present invention is specifically intended to be both lightweight and rigid. A heavier composition, fired at a velocity necessary to attain extended range with the desired degree of accuracy would have excessive inertia and kinetic energy to be considered a less lethal projectile. Similarly, a projectile with the deformable qualities as suggested by Amick would not be able to sustain an acceptable aerodynamic shape then subjected to the pressures and velocities needed to impact

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targets at extended range.

Therefore, there would be no motivation to look to Hayashi and Amick to arrive at the present invention. Thus, both Hayashi and Amick fail as a reference as there would be no motivation to combine Hayashi with Amick to arrive at the present invention.

It is, therefore, respectfully submitted that claims Claims 1, 3, 7, 10-12, as well as the claims which depend therefrom, define patentably over Hayashi in view of Amick.

Claim 4 also stands rejected under 35 U.S.C. §103(a) as being anticipated by U.S. Hayashi in view of Amick and further in view of U.S. Patent 3,062,145 to Morgan. This determination is respectfully traversed.

In contrast to the present invention, Morgan teaches a rim to enhance the unfolding of a crimp, the present invention requires no such reliance. As described above, the present invention relies on light weight and frontal design to attain the desired less lethal qualities. The convex forward shape creates increased surface area to slow the projectile and dissipate kinetic energy. The rim provides a more substantial braking surface as the projectile impacts the target surface. The elimination of the rim would allow the projectile less restricted forward movement, thus increasing the potential for penetration. Therefore the rim in the

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present invention does not serve the same purpose as in Morgan, thus there would be no motivation to look to Morgan to arrive at the present invention. Thus, Morgan fails as a reference as there would be no motivation to combine Morgan with Hayashi and Amick to arrive at the present invention.

Thus, Morgan, Hayashi and Amick, individually or in combination, fail to teach the present invention as set forth in claim 4.

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hayashi in view of Amick and further in view of U.S. Patent No. 6,615,739 to Gibson. This determination is respectfully traversed.

Gibson describes frangible spherical projectiles containing a marking agent. The present invention describes the purpose of the dimples serving a significantly different purpose. The dimples in the present invention reduce surface area available to friction within the barrel of the firearm and reduce the overall weight of the projectile. Though both inventions tend to be non-lethal projectiles, the purpose and intent of the dimples are not related.

Gibson teaches that the purpose of the dimples are to initiate case rupture or enhance accuracy. Gas operated guns (paintball) operate at extremely low velocities, usually less than

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300 fps. This type of projector (gun) has an extreme range of less than 30 yards. While Gibson claims that the dimples will permit improved rupture of paintballs and possibly enhance their accuracy. However, in accordance with the present invention, the use of dimples has a different purpose.

In the present invention, dimples are used to significantly reduce the surface area that comes in contact with the interior of the shotgun barrel. The applicants recognize that dimpling actually increases total surface area, but reduces actual surface available to friction. Reduced surface contact area on the slug reduces friction which in turn requires less propellant pressure to properly fly the slug at lower velocities. Having the ability to reduce velocity enhances the low lethality of the projectile. The reduction in total projectile weight caused by removing material when making the dimples also enhances the low lethality of the projectile at any given velocity.

Therefore, there would be no motivation to look to Gibson to add dimples to the present invention, as Gibson discloses dimples for a completely different purpose as in the present invention. Thus, Gibson fails as a reference as there would be no motivation to combine Gibson with Hayashi and Amick to arrive at the present invention.

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In establishing a *prima facie* case of obviousness, the cited references must be considered for the entirety of their teachings. *Bausch & Lomb, Inc. v. Barnes-Hind, Inc.*, 230 U.S.P.Q. 416, 419 (Fed. Cir. 1986). It is impermissible during examination to pick and choose from a reference only so much that supports the alleged rejection. *Id.* Thus, the express teachings of Gibson, which would lead one away from the invention defined by claim 9, may not be ignored during examination.

To arrive at the present invention as defined by claim 9, the Action not only ignored the express teaching of Gibson, but also engaged in hindsight reconstruction because none of the documents of record teach or suggest the process as claimed, as the cited references, i.e., Hayashi, Amick and Gibson, all require features not found in the present invention. It is well established that hindsight reconstruction of a reference does not present a *prima facie* case of obviousness and any attempt at hindsight reconstruction using Applicants' disclosure is strictly prohibited. *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1445-46 (Fed. Cir. 1993).

Thus, Hayashi, Amick and Gibson, individually or in combination, fail to teach the present invention as set forth in claim 9.

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Having responded in full to the present Office Action, it is respectfully submitted that the application, including claims Claims 1, 3, 7, 10-12, is in condition for allowance.

Favorable action thereon is respectfully solicited.

Should the Examiner have any questions or comments concerning the above, the Examiner is respectfully invited to contact the undersigned attorney at the telephone number given below.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Stephen Cannavale', written over a horizontal line.

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